

# Are Personality and Eating Behaviours Related to no Clinical Males and Females Adolescents?

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## Abstract

Several researches have focused on association between personalities and eating disorders, however, only few studies have analyzed the gender role. For this reason, the purpose of this study is to describe the correlation for no clinical adolescent males and females in the association between eating behaviour and personality. 324 male and 267 female (age:  $17.16 \pm 1.03$ ) filled the Italian version of the EPQ-R, IVE and EDI-II. These findings confirm the role that gender can have in relation between personality and eating disorder. In fact, neuroticism seems to be relevant in both genders while psychoticism has shown more significance correlation in male, instead impulsivity has shown more correlation in female. The discussion centres on the practical application of this study.

## Keywords

Personality; Eating Behaviour; Adolescence; Gender Differences

## Introduction

The scientific interest in eating disorders has grown over the past decade in parallel with the increase of their incidence in young people. About 5% of the Italian population suffers from eating disorders, of which 95% are women, with the age between 12 and 25 years. The percentage of males is about 0.5%, although it is steadily increasing.

Gender plays an important role in the development and maintenance of eating disorders and for this reason many studies have focused on a higher prevalence of eating disorders in female adolescents who are considered particularly high-risk. Several studies (Cuzzocrea F, Larcan R, Lanzarone C., 2012) underlined eating and weight-related problems, body image disturbance, and low self-esteem affecting more females than males. The women seem to give greater importance on weight, shape and drive for thinness than men (Fairburn CG, Harrison PJ, 2003).

To explain the differing prevalence of eating disorder between females and males, it is necessary to refer to biological and cultural differences. Biological differences between genders comprise a series of factors that could enhance the risk, such as body fat composition, endocrine and hormonal variability (Steiner M, Dunn E, Born L., 2003). However, the role of culturally bounded differences in gender role and body image ideal internalization. McCabe & Ricciardelli (2005) suggested the mediating role of culture in promoting and/or enhancing drive for thinness, whereas little is known about the influence of gender role on the relationship between personality characteristics and eating disorders.

The scientific results underline that it is difficult to distinguish the impact of the biological components from the cultural ones, and the literature widely recognized the multifactorial nature of eating disorders as a complexity of factors of a bio-psychosocial and their subsequent interaction that encourages the development of these disorders (Favaro A, Santonastaso P., 2002).

For this reason, we prefer to focus on predisposing, precipitating and maintenance factors. Biological and psychological factors create a vulnerability (predisposing-factors), but situational events, such as a traumatic event, a weight loss program, a detachment from significant others, etc. (precipitating-factors), may favor the onset of eating disorders. And finally, maintenance-factors, namely all those environmental conditions or relationships, may promote or concur in maintaining the disorder (Ostuzzi R, Luxardi GL, 2003).

During adolescence, several biological, psychological and social factors are salient in predisposing the individual to different types of emotional and behavioural problems and, in addition, symptom

expression is strongly influenced by gender (Lewinsohn PM, et al., 2002).

Biologically, puberty is the stage in which, on the one hand, there is a physiological and progressive increase of the percentage of body-mass over the years, and on the other hand, there is an increased concern on their body and their appearance (Connan F, et al., 2003). It is common concern for adolescents on their physical appearance and the search for an idealized physical form achieved through diet or physical activity. All these factors, however, are not sufficient to diagnose a real eating disorder, because there are few cases that evolve into overt clinical disease (Ostuzzi R, Luxardi GL, 2003).

The literature underlined as many psychological factors may create vulnerability. In clinical literature, there are many studies that have investigated the relationship between eating disorders and personality traits, but it is still not clear the way in which personality traits are predisposing factors. Bardone-Cone, et al. (2006) have identified certain salient personality traits: altruism and perfectionism. According to these authors, people with eating disorders are portrayed as individuals who give up their interests and ignore their own needs in favor of other people's interests and welfare. Even more controversial are the results with respect to the role of perfectionism: it is a factor that contributes to the maintenance of the disorder, rather than preceding the disorder or predisposing the individual to develop (Tyrka AR, et al., 2002). Perfectionism (Diaz-Marsa M, Carrasco JL, Saiz J., 2000) and Neuroticism have been related to a higher risk of eating disorders (Gual P, 2002). Actually, it is not clear if, in no clinical males and females, personality traits are differently related with eating behaviors.

Wonderlich SA, Connolly KM, Stice E (2004) have investigated the relationship between eating disorders and impulsivity, but without significant results in terms of disorder's predictability. Helgeson VS, et al. (2007) contended that some inconsistencies in prior research may result from failure to disentangle the positive aspects of gender roles from their negative aspects. Kerremans A, Claes L, Bijttebier P. (2010) underlined as no study investigated associations between these variables in males and, Støving RK, et al. (2011) confirmed that eating disorders are uncommon in males and that majority of outcome studies have not presented gender-specific results, mostly because of small study samples or exclusion of males.

Several studies have investigated the possible

relationships between gender role and eating behaviors, but little is known about such relationships in no clinical samples (Cuzzocrea F, et al., 2012). The purpose of this study is to describe similarities and differences for no clinical adolescent males and females in the association between eating behaviour and personality, focused on predisposing factors.

## Method

### *Participants*

Individuals were recruited from three different high schools in Messina (southern Italy). The initial screening was later used to organize a focus group on these topics and those who participated in this first phase had the opportunity to follow specific courses of psycho-education on eating disorders. 631 individuals (ages: 15-22;  $17.5 \pm 1.42$ ) completed questionnaires that were part of the study. All participants provided informed consent before participation. When the participants were under 18, theirs parents were informed by the school.

In order to exclude all subjects who might present a minimum risk of binge eating disorder, all participants completed the Binge Eating Scale (Gormally J, et al., 1982) which is a sixteen item questionnaire used to assess the presence of binge eating behavior indicative of an eating disorder. The score range is from 0-46 (non-binging<17; Moderate binging=18-26; Severe binging=27 and higher).

For those participants (13 females and 15 males) who obtained scores from 18 to 26, group meetings with a psychologist were immediately proposed, while individual meetings were organized for those (4 females and 3 males) who obtained a score higher than 27.

In this research, only those who obtained a score lower than 17 were included. For this reason, 592 individuals (ages:  $17.16 \pm 1.03$ ) belonging to a middle socio-economic level took part in the study. 324 were male (55%), with an average age of  $17.1 \pm .99$  years. The remaining 267 females (45%) had an average age of  $17.2 \pm 1.06$  years. These averages were not significantly different [ $t(590)=1.37; p=.17$ ].

### *Instruments and Procedure*

Participants were asked to fill three questionnaires, individually presented in the classroom context. The order was balanced within groups.

Participants were asked to complete:

- the 48-item short-scale version of the *Eysenck Personality Questionnaire-Revised (EPQ-R)* (Eysenck HJ, Eysenck SBG, 2004) which measures four dimensions: *Psychoticism* (P), *Neuroticism* (N), *Extraversion* (E) and *Social-Desirability/Lie Scale*.
- Eysenck Impulsivity Inventory (IVE) (Eysenck HJ, Eysenck SBG, 2004) is a self-report questionnaire composed of 54 items and designed to assess the personality traits of impulsivity (I), venturesomeness (V) and empathy (EM).
- *Eating Disorder Inventory-2 (EDI-2)* (Garner D, 1995) designed to quantify some psychological and behavioural traits is made up of 64 items with a rating measured in a range between 0 and 3.

In table 1 the means and standard deviations were synthesized obtained by males and females in all EPQ-R, IVE and EDI-II scales.

TABLE 1 MEANS, STANDARD DEVIATIONS AND ALFA OBTAINED BY MALES AND FEMALES IN EPQ-R, IVE AND EDI-II

	Males(n=324)		Females(n=267)	
	M (SD)	$\alpha$	M (SD)	$\alpha$
Psychoticism	52.79 (11.05)	.51	47.85 (10.29)	.50
Extraversion	54.70 (8.09)	.72	54.05 (7.83)	.70
Neuroticism	52.24 (9.36)	.64	50.63 (8.63)	.61
Lie	48.95 (8.83)	.55	50.67 (9.69)	.62
Impulsivity	57.49 (10.83)	.73	55.86 (9.88)	.74
Venturesomeness	55 (7.44)	.78	49.78 (9.08)	.73
Empathy	51.32 (9.30)	.75	58.69 (7.37)	.77
Drive for Thinness	45.53 (6.07)	.89	50.63 (9.84)	.85
Bulimia	49.88 (10.29)	.63	48.49 (8.43)	.52
Body Dissatisfaction	43.99 (6.27)	.74	49.40 (9.36)	.70
Ineffectiveness	46.06 (7.55)	.75	49.60 (9.87)	.81
Perfectionism	53.63 (10.40)	.67	53.64 (11.51)	.55
Interpersonal distrust	49.90 (8.77)	.65	48.69 (8.75)	.60
Interceptive Awareness	46.75 (7.39)	.69	50.06 (10.38)	.70
Maturity Fears	53.73 (11.44)	.55	56.99 (11.82)	.62
Asceticism	46.69 (8.88)	.52	48.63 (9.52)	.56
Impulse regulation	49.43 (9.59)	.70	48.69 (9.52)	.71
Social insecurity	48.52 (8.71)	.55	48.44 (7.97)	.60

## Results

As it is possible to observe in table 2 that analysis underlined a positive correlation between social desirability and perfectionism and a negative one with interceptive awareness.

In females, it is possible to observe significant negative correlation between social desirability and more specific EDI-II's scales (bulimia, body dissatisfaction, interceptive awareness and impulse regulation).

Psychoticism seems to be differently related with

eating behaviours in males and females. In males, positive correlations among psychoticism and bulimia, interpersonal distrust, interceptive awareness, impulse regulation and social insecurity were found. Instead, in females, psychoticism seems to be positively related only with bulimia, perfectionism and impulse regulation.

TABLE 2 CORRELATIONS BETWEEN EDI-II AND PERSONALITY SCALES FOR MALES AND FEMALES

		Lie	P	N	E
Drive for Thinness	Males	.009	-.09	.18***	-.005
Thinness	Females	-.11	-.02	.33***	-.02
Bulimia	Males	-.01	.19***	.12*	.001
	Females	-.18***	.12*	.22***	.06
Body	Males	-.01	-.01	.16**	-.05
Dissatisfaction	Females	-.13*	-.09	.25***	-.04
	Males	-.07	.08	.37***	-
Ineffectiveness	Females	-.01	-.02	.37***	-
					.22***
Perfectionism	Males	.15**	.05	.08	.01
	Females	.05	.12*	.08	.09
Interpersonal distrust	Males	.03	.14**	.31***	-
	Females	.05	.02	.32***	-.3***
Interceptive Awareness	Males	-.12*	.18***	.48***	-.11*
	Females	-.17**	.01	.45***	-.13*
Maturity Fears	Males	-.11	.01	.24***	-.08
	Females	.02	.03	.26***	-.15*
Asceticism	Males	.03	.01	.16**	-.14*
	Females	-.03	.1	.38***	-.09
Impulse regulation	Males	-.14	.30***	.40***	-.07
	Females	-.19***	.22***	.48***	-.02
	Males	-.05	.17**	.38***	-
Social insecurity	Females	-.12	.08	.34***	-
					.36***

Note: \*p<0.05, \*\*p<0.01, \*\*\*p<0.001

		I	V	Empathy
Drive for Thinness	Males	.10	-.05	.05
	Females	.22***	.01	.11
Bulimia	Males	.18**	.06	-.06
	Females	.34***	.13*	.05
Body Dissatisfaction	Males	.03	-.13*	.03
	Females	.21***	.09	.05
Ineffectiveness	Males	.06	-.14***	.05
	Females	.18***	-.12*	.09
Perfectionism	Males	.09	.05	-.07
	Females	.06	.12**	.03
Interpersonal distrust	Males	-.05	-.17**	-.18***
	Females	.09	-.08	-.09
Interceptive Awareness	Males	.24***	-.09	-.04
	Females	.36***	.01	.17**
Maturity Fears	Males	.12*	-.02	.13*
	Females	.14**	-.06	.13*
Asceticism	Males	-.02	-.02	.01
	Females	.18***	.03	.01
Impulse regulation	Males	.29***	.01	-.17**
	Females	.41***	.13*	.01
	Males	.07	-.13*	-.01
Social insecurity	Females	.14**	-.06	.02

As synthesized in table 2, neuroticism seems to be more relevant in both genders than psychoticism. Infact, in all relations analyzed, this personality trait is positive with eating behaviours, both in males and females. Only in neuroticism it was not significantly related with perfectionism in both genders.

Even extraversion is a personality trait that is equally negative related with ineffectiveness, interpersonal distrust, interceptive awareness and social insecurity in males and females. While in males extraversion it seems to be negatively related with asceticism, in females a negative correlation with maturity fears was observed.

Analyzing the correlations between impulsivity and eating behaviours, it is possible to observe in both genders, even with different weights, positive correlations with bulimia, interceptive awareness, maturity fears, impulse regulation. In the same way, in both genders no statistical correlations between impulsivity and perfectionism and interpersonal distrust were found.

On the other hand, only in females positive correlations between impulsivity and drive for thinness, body dissatisfaction, ineffectiveness, asceticism and social insecurity were found.

Correlation between venturesomeness and eating behaviour underlined the same results in males and female, and in addition, in both genders a negative correlation between venturesomeness and ineffectiveness was found. However, only in females, it was possible to observe specific positive correlations among venturesomeness and bulimia, perfectionism and impulse regulation.

Differently, only in males, the analysis underlined negative correlations among venturesomeness and bulimia, interpersonal distrust and social insecurity.

At least empathy not be so relevant seems to be positively related with maturity fears in both genders. Only in males negative correlations with interpersonal distrust and impulse regulation were found, while in females, empathy is positively related only to interceptive awareness.

## Discussions

The aim of this research was to analyze possible correlations, in a sample of adolescents, between eating behavior and certain personality traits, assessing possible gender differences. This choice stems from the presence of conflicting data in

literature.

The results confirmed that psychoticism and neuroticism are related with eating behaviors, but with different weights. In general, neuroticism seems to be the personality trait more related both in males and females, while psychoticism seems to better differentiate eating behaviors between genders. On the other hand, the extraversion seems to act as a protective factor with respect to feelings of inadequacy and body dissatisfaction (one of the greatest concerns in subjects with eating disorders).

In this research, the relations between eating behaviors and others personality traits less studied in literature were also analyzed: impulsivity, venturesomeness and empathy.

Our results confirmed taking into consideration the impulsivity, which seems to be an important aspect related with eating behaviours in no clinical females adolescent, while the tendency to venturesomeness seems to play a role in reducing dysfunctional eating behaviors in males. In both genders, the empathy seems to not be as relevant as others personality traits.

## Conclusions

This research, in line with the literature, has investigated the psychological variables that could be involved in the origin of eating disorders. One of the limits of this research consisted in the difficulty of selecting participants from different backgrounds. In order to prevent eating disorders and to carry out appropriate treatment, it's necessary to investigate this topic by analyzing other contextual variables, such as family and cultural context.

In our opinion, it's insufficient to propose campaign based on proper nutrition, but it is necessary to investigate thoroughly aspects of personality that may be predictive of these disorders and to develop preventive strategies. As underlined by Forman-Hoffman V (2004), early detection of disordered eating patterns may help in the prevention of more serious syndromes clinically-diagnosed eating disorders.

The results of this research, with all limits, underline the importance to conduct well designed trials (with a larger sample size and randomized allocation) of intervention strategies. Even though the sample is sufficiently large, future research should consider a more generalized sample selecting participants from different socio-cultural contexts.

Another important aspect to underline is that, in this

research we do not define causal-effect relationships, but the co-presence of different aspects that could better explain gender differences. Our results preclude any statements of causal relations and confirm that disordered eating as a complex and multifaceted phenomenon is difficult to simplify. Perhaps, future longitudinal research could contribute to examining the interaction of personality traits and eating disorders.

## REFERENCES

- Bardone-Cone AM, Abramson LY, Vohs KD, Heatherton TF, Joiner TE. "Predicting bulimic symptoms: An interactive model of self-efficacy, perfectionism and perceived weight status". *Behaviour Research and Therapy* 44 (2006): 27–42.
- Connan F, Campbell IC, Katzman M, Lightman SL, Treasure J. "A neurodevelopmental model for anorexia nervosa". *Physiological Behaviour* 79 (2003): 13-24.
- Cuzzocrea F, Larcan R, Lanzarone C. "Gender differences, Personality and eating behaviors in non clinical adolescents". *Eating and Weight Disorders. Studies on Anorexia Bulimia Obesity* 17 (2012): 282:289.
- Díaz-Marsa M, Carrasco JL, Saiz J. "A study of temperament and personality in anorexia and bulimia nervosa". *Journal of Personality Disorders* 14 (2000): 352–359.
- Eysenck HJ, Eysenck SBG EPQ-R Eysenck Personality Questionnaire – Forma ridotta. In: Scale di personalità Eysenck per adulti. Firenze: Organizzazioni Speciali, Giunti, 2004.
- Fairburn CG, Harrison PJ, Eating disorders. Lancet, 2003.
- Favarro A, Santonastaso P. "The spectrum of self-injurious behavior in eating disorders". *Eating Disorders* 10 (2002): 215–225.
- Forman-Hoffman V. "High prevalence of abnormal eating and weight control practices among high-school students". *Eating Behaviors* 5 (2004): 325–336.
- Garner D, Eating Disorder Inventory-2 (EDI-2). Firenze: Organizzazioni Speciali, Giunti, 1995.
- Gual P, Pérez-Gaspar M, Martínez-González MA, Lahortiga F, De Irala-Estévez J, Cervera S. "Self-esteem, personality, and eating disorders: Baseline assessment of a prospective population-based cohort". *International Journal of Eating Disorders* 31(2002): 261–273.
- Gormally J, Black S, Daston S, Rardin D. "The assessment of binge eating severity among obese persons". *Addictive Behaviours* 7 (1982): 47–55.
- Helgeson VS, Escobar O, Siminerio L, Becker D. "Unmitigated communion and health among adolescents with and without diabetes: The mediating role of eating disturbances". *Personality and Social Psychology Bulletin* 33 (2007): 519–536.
- Kerremans A, Claes L, Bijttebier P. « Disordered eating in adolescent males and females: Associations with temperament, emotional and behavioral problems and perceived self-competence ». *Personality and Individual Differences* 49 (2010): 955–960.
- Lewinsohn PM, Seeley JR, Moerk KC, Striegel-Moore RH. "Gender differences in ED symptoms in young adults". *International Journal of Eating Disorders* 32 (2002): 426–440.
- McCabe MP, Ricciardelli L A. "A prospective study of pressures from parents, peers, and the media on extreme weight change behaviors among adolescent boys and girls". *Behaviour Research and Therapy* 43 (2005): 653–668.
- Ostuzzi R, Luxardi GL, Figlie in lotta con il cibo. Milano: Baldini Castaldi Dalai, 2003.
- Steiner M, Dunn E, Born L. "Hormones and mood: from menarche to menopause and beyond". *Journal of Affective Disorders* 74 (2003): 67–83.
- Støving RK, Andries A, Brixen K, Bilenberg N, Hørder K. "Gender differences in outcome of eating disorders: A retrospective cohort study". *Psychiatry Research* 186 (2011): 362–366.
- Tyrka AR, Waldron I, Gruber JA, Brooks-Gunn J. "Prospective predictors of the onset of anorexic and bulimic syndromes". *International Journal of Eating Disorders* 32 (2002): 282–290.
- Wonderlich SA, Connolly KM, Stice E. "Impulsivity as a risk factor for eating disorder behavior: Assessment implications with adolescents". *International Journal of Eating Disorders* 36 (2004): 172–182.



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